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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,534	03/23/2004	Yoshihiro Kobayashi	9319S-000744	3768
27572	7590	03/06/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			KAYES, SEAN PHILLIP	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/807,534

Applicant(s)

KOBAYASHI, YOSHIHIRO

Examiner

Sean Kayes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,11,12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) 3-10, 13, and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,11,12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413) .<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)               |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/17/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of claims 1, 2, 11, 12, and 14 in the reply filed on 1/27/06 is acknowledged. The traversal is on the ground(s) that there is no undue burden. This is not found persuasive because contrary to applicant's assertion a search for and application of prior art to the limitations of the plural species is in fact a burden on the office.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 3-10, 13, and 15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1/27/06.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "sensitive film" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures

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appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by  
Goodier (US 47739493.)

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6. With respect to claim 1 Goodier discloses a measurement method for detecting mass based on a change in vibration frequency of a piezoelectric vibration reed for mass measurement, the measurement method comprising: a step of supplying an excitation signal to excite the piezoelectric vibration reed (column 8 lines 28-30) and calculating a phase difference (column 8 lines 36-42) between an output signal of the piezoelectric vibration reed and the excitation signal; and a step of adjusting the frequency of the excitation signal (column 8 lines 42-45) corresponding to the phase difference and calculating the vibration frequency of the piezoelectric vibration reed (column 8 lines 42-50.)

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodier (US 4773493) in view of Satoh (US 5874866.)

With respect to claim 2 Goodier disclose a circuit for exciting a piezoelectric vibration reed for mass measurement, comprising: a phase detection unit (microcomputer, column 8 lines 51-62) for calculating a phase difference between the excitation signal from the oscillator (piezoelectric oscillator, item 42

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and column 8 lines 36-42) and an output signal (column 8 lines 51-62) from the piezoelectric vibration reed (42, column 8 lines 36-42); and a control voltage output unit (receiver, column 8 lines 42-45) for supplying a voltage corresponding to the phase difference calculated by the phase detection unit to the oscillator, and allowing the excitation signal having the same frequency as the frequency of the output signal of the piezoelectric vibration reed to be outputted to the oscillator.

Goodier does not explicitly disclose that the excitation signal is provided by a voltage controlled oscillator (VCO.) VCO's are well known in the art. Satoh teaches an oscillator circuit with a voltage controlled oscillator.

It is very probable that Goodier is using a VCO to drive his piezoelectric oscillator. However, in the case that Goodier is not using a VCO it would be obvious to one skilled in the art to use a VCO to drive the piezoelectric oscillator in Goodier's invention. The suggestion or motivation for doing so would be to use a tried and tested method of exciting a piezoelectric device, which is responsive to feedback to control the oscillations of the reed.

With respect to claim 14 Goodier in view of Satoh teaches a mass measurement apparatus including a circuit for exciting a piezoelectric vibration reed (item 12 when the beam 12 is formed of a piezoelectric device and the combination of items 40 and 12 when the beam is not formed of a piezoelectric material as discussed in column 8 lines 23-50) for mass measurement according to claim 2.

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9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodier (US 4773493) in view of Satoh (US 5874866) in further view of (Patashnick US 4391338.)

10. With respect to claim 11 Goodier in view of Satoh teaches a circuit for exciting a piezoelectric vibration reed for mass measurement according to claim 2. Goodier in view of Satoh does not teach wherein the piezoelectric vibration reed has a sensitive film on only one side surface thereof for measurement in liquid.

Patashnick teaches a sensitive filter on only one side for measurement in liquid (19 figure 1, filter is on only the top side of the picture.)

At the time of the invention it would have been obvious to one skilled in the art to use Patashnick's sensitive filter in combination with the circuit taught by Goodier in view of Satoh for the purpose of measuring mass. The filter could be combined on the mass measurement side of Goodier's device.

The suggestion or motivation would be to allow measurement of a mass suspended in water.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodier (US 4773493) in view of Satoh (US 5874866) in further view of Hassel (US 6080939.)

With respect to claim 12 Goodier in view of Satoh teach a circuit for exciting a piezoelectric vibration reed for mass measurement according to claims 2.

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Goodier in view of Satoh does not teach wherein the piezoelectric vibration reed has a sensitive film at least one surface thereof for measurement in air.

Hassel teaches using a sensitive filter on at least one side (152 figure 1) for measurement of mass in the air.

At the time of the invention it would have been obvious to one skilled in the art to use a sensitive filter as taught by Hassel in combination with the device taught by Goodier in view of Satoh for the purpose of measuring mass in the air.

The suggestion or motivation would be to allow accurate measurement of a mass suspended in the air.

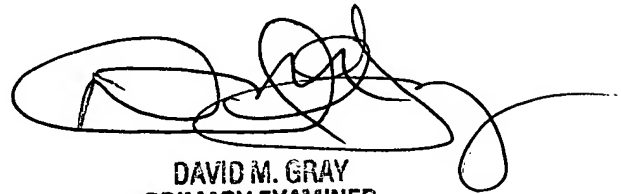
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Kayes whose telephone number is (571) 272-8931. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on (571)272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DAVID M. GRAY  
PRIMARY EXAMINER

SK  
2/24/06